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# *Right NOW Is the Time to Feature*

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The public was never in a more receptive mood for a solid fuel substitute than at the present moment. It is getting tired of being the plaything of both sides of the coal controversy and will look more keenly into the advantages and conveniences afforded by gaseous fuel for heating their homes.

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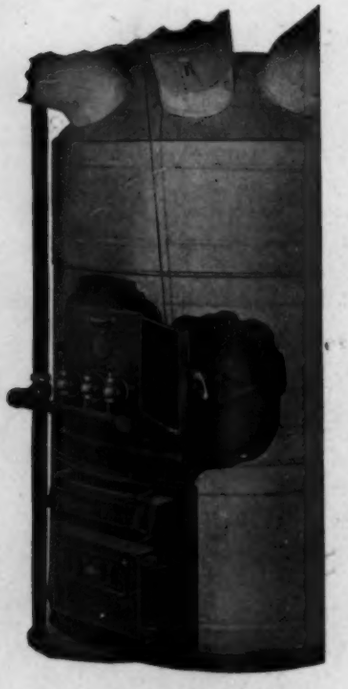

**The Franklin Quick Removable Gas Burner System, as illustrated, is an auxiliary heating appliance for use on coal furnaces and boilers. It can be easily attached in a few minutes' time. Equipped with a swinging stop cock which makes a leak-proof installation when the burners are in use, and a complete shut-off when the burners are swung out of the way. Venturi Tubes are used in the burners. Economy and perfect combustion are possible under any and all conditions without air mixer regulation. Varying gas pressures will not affect the burner, cause it to backfire in the mixer, or go out under low pressure.**

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The wide-awake gas companies will take quick advantage of this opportunity to increase their sendout and reap the profits from this wonderful burner that permits the use of gas or coal alone, or in combination.

Let us help you sell Franklin Burners. We have a fine demonstration display that never fails to attract and convince those who see it.

Write for full details *at once*.

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# American Gas Journal

SIXTY-SEVENTH YEAR

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# Fuel of the Future--What Shall It Be?

## XXVI. Heat treatment and melting point of non-ferrous metals

*Ismar Ginsberg*

IN the previous articles of this series there have been discussed the general principles of the application of gas as an industrial fuel and also one particular application of industrial gas, namely, in the heat treatment of metals. The articles that were concerned with this application of gaseous fuel were limited mainly to the processes which are used on iron and steel. These processes were described in considerable detail and many examples were given to show the manner in which calculations are generally made in order to determine the consumption of gas and other details of the heat treating process.

We are now ready to study other important applications of industrial gas in the melting and heat treatment of the non-ferrous metals, particularly copper and its alloys, as well as other alloys of other metals. This section of the series will be concerned not only with the melting of the metal but also with certain heat treating operations to which the metal may be subjected.

### Importance of the Metals

Copper and brass are very important metals. They are too well known to require any detailed description of their properties. Copper is the red metal which possesses particularly high resisting powers to the ordinary corrosive agents which affect iron and steel. Brass is an alloy of copper and zinc. An alloy is in reality a solid solution. Thus the alloy brass is really the result of dissolving the metal zinc in the metal copper. The solution may take place while both metals are in the molten state and when the melt solidifies the result is a homogeneous mixture which possesses certain advantageous properties which are characteristic of neither of the two metals which were melted together to give the alloy. It is customary to melt the metals together to form the alloy and then to use the alloy in sheets or other form by casting in suitable molds to obtain various articles. There are important factors which control the casting process and which must be watched very carefully in order that a product can be obtained which is not subjected to internal stresses and strains and which is hence mechanically resistant to the various influences that it has to withstand in actual use.

It has been said that copper and brass are important metals and that their use is increasing by rapid strides. They possess many advantages over iron and steel and for certain purposes are strong enough to be used in the place of these metals where it is desired to have a non-corrosible product. Thus the use of copper in making the leaders and water drain systems in houses is an important application, as it lasts forever, practically speaking. The metal copper also finds many uses in the manufacture of piping and apparatus that are employed both in the home and in the factory.

Hence the use of gas in the melting of copper and brass and of other non-ferrous metals and alloys and in subsequent heat treating operations carried out on these metals is an important matter. A considerable load is available to the gas company in this field, and it is one that has many attractive features.

### What Is Brass?

The first point that must be considered is the definition of brass. This metal will be the first to be studied in this series. Ordinarily brass is taken to denote the alloys that are made by mixing various proportions of copper and zinc. Commonly brass contains considerably more copper than it does zinc. At times, however, the proportion of zinc added may be increased to as high as 42 per cent. As a general rule the alloy brass contains other metals as well. There is always a certain amount of tin present in the alloy and there may also be found in it such metals as iron, manganese and aluminum.

The effect of the various ingredients on the physical and chemical properties of the alloy is an important matter. The variation in the proportions of the two principal ingredients of brass, copper and

zinc also results in variations in the tensile strengths and ductility of the alloys formed, and of course in their melting points as well. Thus, for example, an alloy which contains 60 per cent copper and 40 per cent zinc has the highest tensile strength, namely, approximately 50,000 pounds per square inch, as well as the highest degree of ductility, which is measured as 50 per cent elongation. This alloy will also have the low melting temperature of approximately 1,635 degrees F.

### Regulation of Proportions of Ingredients

The fact that the percentage of the various metals in the alloy determines very definitely the properties of the alloy itself makes it an important matter to regulate the proportions of metals in the finished cast alloy as closely as possible, in order to obtain a product which is possessed of the desirable properties. The melting of the alloy must therefore be carried out in such a manner that the proportion of the various ingredients in the finished alloy is fixed. It is easy to see that unless the heating of the melting pot in which the operation is carried out is conducted under conditions which can be properly and accurately controlled, it will be impossible to tell beforehand what kind of an alloy will be obtained in the process. There is plenty of chance for the ingredients to be lost by volatilization and in other ways which are directly connected with the manner in which the heating process is carried out, and which will be discussed later in more detail. This indicates clearly that the melting process is not as simple as it looks and that the industrial gas man who is endeavoring to introduce his fuel into this important industry must be thoroughly cognizant of all the facts and of all the details that pertain to the melting of brass and of the other nonferrous metals and alloys as well, before he can hope intelligently to attack the problem and secure a solution that will meet all the practical requirements of the commercial process.

### Problem Intrinsically Complicated

Here again we have a case which appears to be most simple at first glance, but in which various factors are involved which tend to make the problem a rather complicated one. But, it is just these factors which complicate the problem that afford gas an opportunity for entering the field and solving the difficulties that exist there in such fashion that, when it is once used in the place of the fuel now employed, there will be no inclination whatsoever to change back again to the old fuel. It might well be, if brass melting, for example, were so cut and dried an affair that it was simply a matter of mixing together the correct weights of the various metals and then drawing off the finished alloy from the melting pot, that gas would not have much of a chance against the cheaper fuels that could be used for the same purpose. For it must once more be called to the attention of the gas man that the function of industrial gas is not only to supplant less efficient fuels but also rather to allow the manufacturer an opportunity of improving the general effectiveness of his heating operation. It will be shown later how gas accomplishes its function in this field.

Before taking up the question of the advantages of the use of gas for this and other similar purposes, it is well to study a little more intensively the entire question of melting metals to form alloys, and particularly the melting of zinc and copper to form brass.

### What Is an Alloy?

It has been said before that an alloy is a solid mixture of two or more metals. The properties of the alloy vary considerably according to the proportions of the various ingredients, as well as according to the amount and nature of the impurities that exist in it. There is always one alloy in a series which is formed from a mixture of two metals which has properties that are best suited for some definite purpose and there is also one alloy of a series which has the lowest melting point. This alloy is known as the eutectic alloy.

Thus, as far as brass is concerned, while it is a mixture of zinc and copper, there are quite a number of different mixtures of these two metals which are known by the generic term brass. This is not commonly appreciated by the average man, for brass is so common a metal that many think that its composition is fixed and that it is something like copper or tin as far as uniformity is concerned. This is by no means so. Not only are there different brasses, according to the composition of the metal, but the addition of other metals as well gives brasses which are possessed of special properties. Thus, for example, when a little tin is added to the brass there is obtained what is known as naval brass. The reason for its name is found in a peculiar property that the alloy possesses in being less subject to attack by sea water than other brasses. For this reason it is employed in the construction of parts of vessels which come in contact with sea water. This alloy generally contains 62 per cent of copper, 37 per cent of zinc and about one per cent of tin. Tin has the effect of increasing the hardness of the brass but it does not appear to have any marked effect on its mechanical properties.

### Purpose of Alloying

It may be well to consider here the entire purpose of alloying. Take the metal copper, for example. It has many important properties and characteristics which render it very useful for many purposes. Thus its great ductility and tenacity make it particularly useful for special purposes, but then again it is just because of these properties that it is unsuitable for other purposes. The same reasoning applies to other metals, such as aluminum and the precious metals.

It is, however, possible to give the copper and these other metals the desirable properties by mixing with it another metal or two. The process is called alloying and in this process, that in making

(Continued on page 494)

# Organizing the Sales Department*

## Selling appliances, industrial gas and by-products

*Dr. Melvin T. Copeland*

Director, Bureau of Business Research, Harvard University.

IN undertaking to discuss with you the problems of organizing the sales department in the gas business I am handicapped by the fact that my only knowledge of your industry is that of a layman. Others on our staff could speak with some authority on the problems of your industry, but I can bring only my experience with other industries and, as I have said, a layman's knowledge of the gas industry. I judge that the gas business may not have all the problems that are experienced by other industries, but I suspect that your merchandising problems probably are more like those of other businesses than frequently is assumed.

In organizing the sales department the first step is to analyze the task to be performed. Every sound merchandising plan must start with the consumer's point of view, with a recognition of his buying habits, preferences and motives. It is from that standpoint, therefore, that I will approach the problem of sales organization in your industry.

### Three General Groups

Using this starting point, the sales problems of a gas company, it appears to me, usually fall into three general groups—first, those relating to appliances; second, those relating to industrial uses; and third, those relating to by-products such as coke. I am taking for granted that in most communities where gas companies are established a large proportion of the houses are piped for gas. In so far as this is true, it means that a possible fourth division on the securing of new installations in homes is a minimum problem. I am passing over that entirely. The three groups of problems to which I referred indicate three distinct segments of your market with different consumers or at least different buying habits and motives. Under these circumstances it follows, I believe, that separate provision should be made for each segment of the market in planning the sales department. This is in line with the experience of other industries where a segregation of the sales organization has usually been found advisable for distinct and substantial segments of the market.

### Industrial Use of Gas

Taking the divisions I have just indicated in reverse order, the first that I will refer to is that which includes users of gas such as bakeries, laundries, restaurants, hotels and mills and factories of various kinds. Under this same heading perhaps the users of gas steam radiators also should be included. The outstanding characteristics of this market apparently are as follows: In the first place, each customer ordinarily will use a large quantity of gas. The customers must be sought out individually. The rate schedule must be especially adjusted in order to stimulate the use of gas for industrial purposes on a large scale. Here I understand that gas companies generally have not gone as far as the electric companies in catering to industrial patronage. Because of the type of customer and the special circumstances surrounding the use of gas for industrial purposes, each prospective customer, before installing gas equipment, will want instruction as to its potential use, aid in preparing specifications for the installation, and assurance of economy and dependability in use after the installation. This means that the salesman must give careful attention to the special requirements of each prospective customer and the salesman must render industrial engineering service in order to consummate sales.

The gas company must be ready to make repairs to the equipment or to remedy defects in equipment or service on short notice. This clearly is a specialized market and consequently calls for separate provision within the sales organization.

### By-Products

The second division of the market is that which relates to by-products. This market, or group of markets, is distinct from the other two groups. At the present time the anthracite coal strike affords a good illustration of the merchandising problems in this branch of the gas business. The coal strike, unfortunately, is no longer a novelty. One would have to be an optimist to expect that the present suspension of operations would be the last in the anthracite field. Yet how many gas companies are utilizing this opportunity to win an effective share of the coal market and hold it after the strike is settled? If coke will give satisfactory service for heating, this emergency offers an opportunity to secure a permanent foothold. From the merchandising standpoint, however, this emergency should be utilized to induce consumers to buy coke, not as a temporary substitute, but on its inherent merits as fuel with the expectation of continued use. An article which is offered merely as a temporary substitute inevitably is disparaged, and if it is offered primarily as a temporary substitute, patronage will revert to anthracite coal as soon as an adequate supply becomes available. To digress a bit further, I will venture to express the opinion that the anthracite coal strike would present far less serious as-

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*Read at the Tuesday meeting of the Accounting Section, A. G. A. Convention, Atlantic City, October 13, 1925.

# Accident Prevention in Gas Industry*

## How a large gas organization carries on safety work

*James B. Douglas*

Manager Insurance Department, The United Gas Improvement Company, Philadelphia

ABOUT 20 years ago, through its Claim Department, the United Gas Improvement Comand the many companies in which it was interested as a shareholder, initiated a systematic effort designed to prevent accidents, the interest theretofore having been desultory in nature.

The result was that reports of accidents received at the home office, after having been scrutinized from a liability viewpoint, were carefully considered with regard to what could be done to prevent recurrences. As time passed, accident prevention became one of the most important factors in the department's activities, and efforts were made to advance the subject at every opportunity, especially before national public utility associations.

In Philadelphia, we now have some 3,200 employees.

### Property Inspection

All company propery is thoroughly inspected annually or semi-annually. Although in the early stages of the movement, the mechanical phase of accident work was the most important, at this writing, speaking broadly, the necessary mechanical safeguards have been installed, and the result is that, to those who strive to be up to date in this phase of industrial work, the problem has principally to do with the man on the job—his educatoin in measures designed to insure the safety of himself and of his fellow workers. It is believed that 80 per cent of the efforts devoted to accident prevention by those in supervisory positions can be most effectively directed towards showing the workmen how to be careful and what to look out for in their daily work.

With this end in view, we hold shop meetings periodically. At these meetings safety talks are given and important accidents occurring since the last meeting are discussed. Lantern slides are features, showing accident hazards liable to be met by the men in their work. The meetings are in the nature of district or family groups and the interest in the subject is sincere.

### Physical Examinations

Physical examinations have much to do with the work of fitting the man to the job. If he is fitted to the right job and given proper instructions, he will naturally be less of a hazard to himself and to his fellow workmen than the man employed in a more or less haphazard fashion and simply told to go to work. Applicants for employment with our company are carefully questioned by experienced interviewers and serious effort is made to select only persons properly equipped for the work in view.

Where this was not done, the following old case is in point: A painter who was much overweight, weighing more than 225 pounds, was put to work on a scaffold. Being naturally clumsy, he fell from the scaffold, sustained a fractured hip, followed by complications from which he died after a disability of over a year. There were available at the time other capable painters of normal weight, and had one of them been selected for the work, the accident and consequent loss to the employee, his family, and to the company, undoubtedly would not have occurred. The victim of the accident should not have been permitted to do overhead work, because of his excess weight.

Recently I heard a student of safety, for whom I have the highest regard and with whom I heartily agree, before a body such as this, name as the three most important elements in accident prevention effort, first, careful selection of men and allocation or placement; second, careful instruction of the men selected; and third, close supervision.

### Instructing the Foreman

The foreman can be and should be the most important individual figuring under the headings of instruction and supervision. The safety of his men lies with him, who is the key man. When he is careful to fully instruct his men along accident prevention lines and to see that their behavior shows due regard for what he has told them, a good accident experience will soon speak in his favor. Conversely, if he is lax in his duty in this respect, a bad accident experience will soon cry out against him. The man who starts an operation carrying with him the thought that accidents are to be expected as a natural consequence of the work to be done is a poor leader. The best foreman starts with the promise that he won't have any accidents among his men, and conscientiously works with that idea in mind. Then if accidents do occur, they are most liable to be less in number and severity than those experienced by the other fellow.

Whenever a bad industrial accident occurs, laxity is usually found somewhere, and often in supervision. Foremen or key men should be given special treatment in the safety movement, and they should be made champions of the cause. Accident prevention formerly was a somewhat popular side issue, but now it is a main issue, and results are what they should be only when it is given due consideration. Safety is but an every-day common sense proposition. Its benefits are for all.

Superintendents can carry on accident prevention

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*Presented before Southern Gas Association, Wilmington, N. C., June 9, 1925.

# GAS MERCHANDISING

*Domestic – Industrial*

# Ideas for the Man Who Sells

*William H. Matlack*

### HALLOWE'EN ADVERTISING

THE Georgia Railway & Power Company take advantage of every opportunity to make their advertisements timely. To illustrate how they do it we are reproducing a Hallowe'en advertisement run in the daily newspapers by that company. This

Make Something Good for Hallowe'en
Now's the time for fun in the kitchen . . . Apples—cakes—pies—and other goodies of the grand old harvest season . . . Give the children a good time . . . a real feast. You were young not so long ago.
Georgia Railway & Power Co.
RETAIL GAS APPLIANCES
ATLANTA — 75 MARIETTA ST.
DECATUR — 136 SYCAMORE ST.

company make mighty good use of small white space, and as they use space daily, it is evident that they appreciate the fact that continuity in advertising is more profitable than spasmodic advertising, even though the actual space per advertisement is smaller.

### WHAT THEY'RE DOING AROUND THE BELT

WILLIAM C. HAMMOND, sales manager of the Nassau and Suffolk Lighting Co., built a background for one of his display windows by using a screen made of blue and white oil cloth, with window drapes made of an attractive blue and white checked gingham. This is a novel way of exposing gas ranges to sales, but Hammond not only exposes them to sales, he sells 'em. In April he sold around 150 ranges when he staged a "Heat Sale."

The Central Hudson Gas Company, Poughkeepsie, is reported recently to have sold 406 gas ranges in seventeen days. The thing was accomplished by "following through" on a predetermined campaign, from banners to bulletins. That is the secret back of most successful selling campaigns; they are not only paper campaigns but they are campaigns that are carried through—from soup to nuts, so to speak.

### GOING AFTER FALL BUSINESS

GAS companies should keep in touch with the weather man these days and the moment he issues a warning of a cold snap they should arrange a good window display of portable heaters, gas steam radiators or house heating boilers. For there is always a lot of people who put off preparing for winter until it really hits them. One of the western companies has been advertising heating appliances all summer and has just released a newspaper campaign that will keep heating appliances before the public up until the first of November, despite the fact that its heating engineers and

installation department are working to capacity.

By all means, work out a window display of portable heaters and if possible get one of them going and glowing. If your window will not permit the heater to be actually burned, arrange an electric glow by using bright red and orange paper.

## FLEXIBLE FLOOD LIGHTING FOR PACIFIC GAS & ELECTRIC BUILDING

A flexible flood lighting system has been adopted by the Pacific Gas & Electric Company in lighting their new building in San Francisco. The following schedule was followed during the month of May: On Saturday and Sunday nights the entire building is flood lighted. From the fourth to the fourteenth floors the building is flood lighted by batteries of projectors on the roof of buildings across the street. The floors above the fourteenth are flood lighted by lights placed in recesses on the upper part of the building. The space below the fourth floor is lighted by the Market Street Lighting. On Monday night the sixteenth floor only was lighted and all the remaining parts of the building dark. On Tuesday night only the fourteenth floor is lighted and on Wednesday the main part of the building up to the fourteenth. On Thursday night the fourteenth and fifteenth floors are flood lighted, as shown in photograph 2, the remaining floors not being lighted, although the long exposure given the picture would give the impression that the entire building was flood lighted. On Friday night the sixteenth floor only is flood lighted.

## HERE'S A GOOD TIP

**J. B. Dillon**

IT has been stated: "It makes no difference what is said, it depends upon who says it," and then the expression has been changed to: "It makes no difference who says it, it depends upon what is said."

Either assertion admits of an argument, therefore we merely "sprung" them to show that the right expression in the right place is what counts, and here is the right expression.

A certain music firm has a habit of interposing between various large advertisements in the newspaper—the advertisements being foreign to their business—a little advertisement of their own, and no matter how many times I have looked over the different newspapers, that little advertisement looms up and I read it, because it is small and is printed in bold black letters. It tells me that "Wonderful sale of pianos and player pianos now on at ——— Corner of ——."

If I was in the market for either of these wonderful instruments, I should have called long since. And now here is the good tip! Why not do the same with your gas ranges, water heaters, etc.? The cost of the advertisement is small, the results large!

## WATER GAS TAR FOR EXTERMINATING CHINCH BUGS

Carl B. Wyckoff, president of the Emporia Gas Company of Kansas, told the convention that water gas tar had been found effective by the Kansas State Agricultural College in exterminating chinch bugs, which cause a loss to farmers of from $5,400,000 to $100,000,000 every year.

"By the use of gas tar spread as a barrier in front of the fields of growing corn, the farmers of Kansas have scored a signal victory over one of agriculture's most destructive enemies," Mr. Wyckoff said. "For the first time in the history of the State the migration of the bugs has been stopped, and the tar, the by-product of the gas house, is largely responsible for the chinch bug's defeat.

"The success of this method of fighting chinch bugs means much to the agricultural states. It virtually means that chinch bugs can be controlled by the farmer with a little effort and a small expense."

# As The Journal Views It

## EDUCATING THE EMPLOYEE

The success of any business depends upon the character of the men that are connected with it. This is particularly true in the gas industry, for it, as all other public utilities, is dependent largely upon the good will that it enjoys in the community it serves. The building and maintaining of this good will are accomplished principally through the impressions that are made upon the customer when he comes into contact with the employees of the company. It is true that there are other agencies which are of importance as far as good will is concerned, but it remains a fact that the most potent means of securing the friendship of a customer is through the satisfaction that the customer may obtain by coming into direct contact with an employee of the company.

Thus, the character of employees that the gas company has in its organization determines largely the opinion that is held of it in the community. It is, therefore, essential that the gas company build up an organization of well-trained, intelligent employees who understand the problems of the gas business and who are imbued with the proper spirit both towards their company and the public that it serves. It is practically impossible to secure such employees ready-made, as it were, only comparatively few being recruited from other utility organizations, and the task, therefore, falls upon the gas company of educating and training the members of its organization, so that they have both a proper understanding of their work and of their obligations, and so that the results, particularly of their contact with customers, are such as to promote the interests of the company and make more secure its position in the community.

The education of the employee of the gas company involves a study of the employee's attitude towards the company, with the end in view of developing a proper customer attitude in him. It is understandable that only when the employee appreciates the importance of his position, and is well inclined towards the company that employs him, and is really interested in the work that forms his daily task—only under such conditions will the employee conduct himself properly toward the customer and inculcate in the latter's mind a feeling of respect for that employee and for the company that employs him.

It may be said that the importance of what newspapers think of a gas company has been overestimated. Of course, the pen is a mighty weapon and the printed word, particularly in a newspaper, has under certain conditions a potent effect on public opinion. However, the main factor in determining what the public thinks of the gas company is the gas company itself and the gas employee. In other words, good public relations depend, to a large degree, on the gas industry itself.

Analysis has been made of the factors that determine the attitude of the customer towards the company. The results have shown that the satisfaction that is felt by the customer on coming into contact with an employee is far more influential than any other factor. The personal element involved is the important feature. This is a phenomenon which is recognized in every field of human endeavor. And because it is of such importance the training of the gas personnel assumes an importance that is not possessed by any other one factor that exerts a controlling influence on the operation of the gas utility.

The gas company has recognized the importance of this matter. It has given it much study and thought and it has taken practical steps in various ways to develop the right kind of personnel in its various departments. At the recent annual convention education of the gas employee was an important item of discussion. This work is highly to be commended and forms an important factor in gas progress.

# Good Prospects for Fall Market

## Labor situation requires attention--Adjustment required in purchase policy

*L. W. Alwyn-Schmidt*

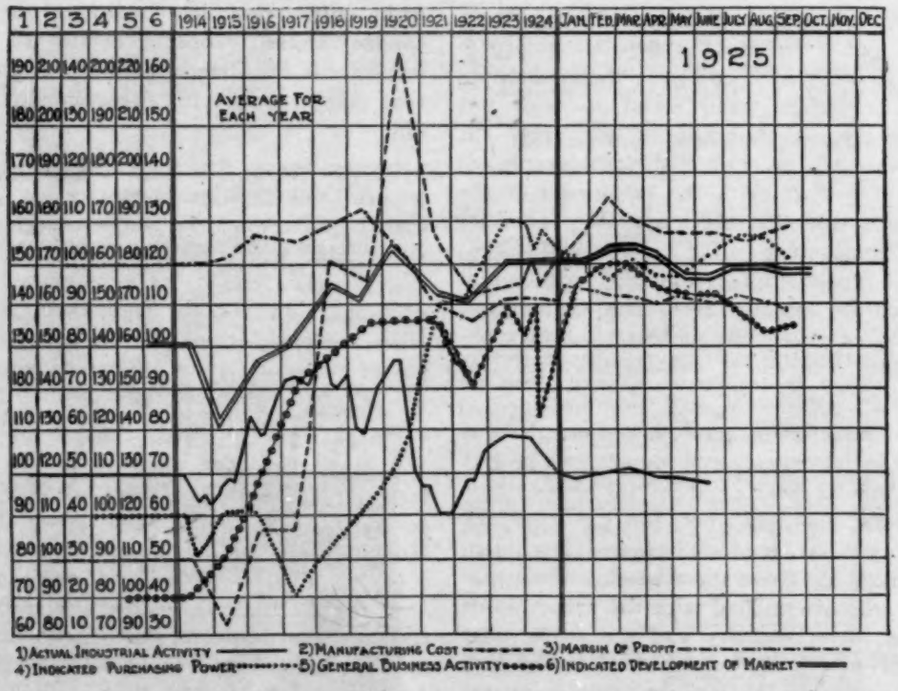
AFTER a period of steady improvement, the nation is now faced with a new problem in the reappearance of labor unrest as a factor in industrial production. While market experts are inclined, at the present time, to make light of this development, there is no denying the fact that a strike in so important an industry as that of coal mining can not but have a very serious effect upon national prosperity as a whole. Strikes, and for that matter any other forced stoppage of industrial production, are a particularly vicious form of waste, because they reduce not only the flow of production, but also the ratio of overhead expense upon production cost.

The householder who complains about a slight increase in his coal bill can be commiserated with. But his troubles are not to be compared with those of the Central Station plant that finds it impossible to secure a regular supply of coal to feed its boilers, or the manufacturer who is deprived of raw materials owing to a breakdown of the transport service. The result is that an element of insecurity is thrust upon the conduct of business which must be taken into consideration when contemplating the prospects of the nation's markets during the next few months.

### A Way Out Is Provided

There is fortunately a way of dealing with any situation, and the careful manufacturer or merchant, by studying carefully his particular problems, may accommodate himself to the emergencies which are likely to arise from the present conditions. The effects of strikes upon business are of varying character. Next to the increase in the cost of operation there has to be taken into consideration a possible delay in industrial production, a disorganization and slowing-up of the distribution of merchandise, and a renewed stringency of cash.

Every one of these can be met successfully if foresighted action is taken. Hence the need of an early realization of what is taking place and what may be the consequences of the present situation. To be forewarned is to be forearmed. For the manufacturer this means immediate action as regards securing a regular supply of essential raw materials, and a campaign of education among his customers to keep in good order his channels of distribution.


1 2 3 4 5 6
1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924
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1925
AVERAGE FOR EACH YEAR
1) ACTUAL INDUSTRIAL ACTIVITY
2) MANUFACTURING COST
3) MARGIN OF PROFIT
4) INDICATED PURCHASING POWER
5) GENERAL BUSINESS ACTIVITY
6) INDICATED DEVELOPMENT OF MARKET

### Careful Placing of Contracts Necessary

Manufacturing for stock reserve unfortunately is not always possible under the special conditions of American industrial production, although this is frequently and successfully resorted to in the Old World, where merchandising conditions are more stabilized. But an exact appraisal of raw material

(Continued on page 496)

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT YOU CAN DO IT BETTER WITH GAS

# Lesson No. 91

## Heat and Change of State

### COLD BY EVAPORATION

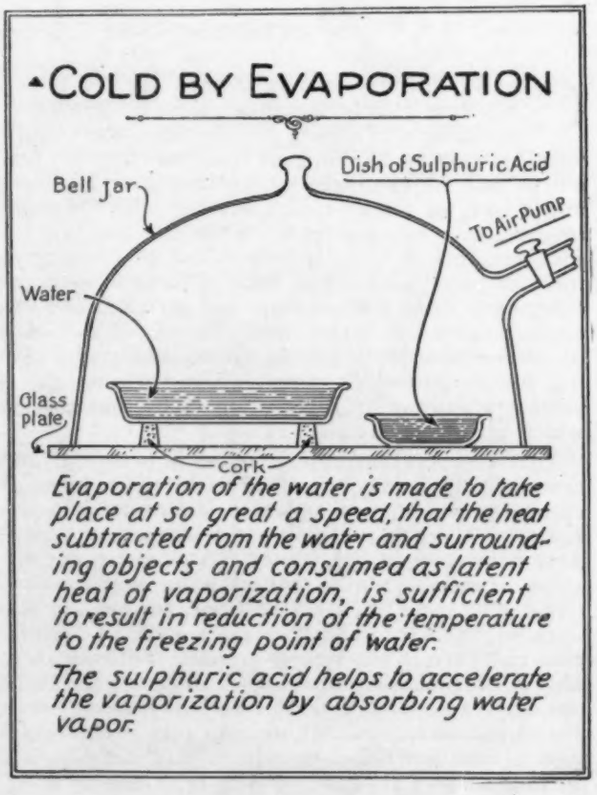
It may seem paradoxical to say that evaporation, which connotes the application of heat to a liquid, so as to bring it to the boiling temperature and then to change its state from the liquid to the gaseous, will result in the production of cold. But, on closer examination of what takes place during the evaporation process or at least during that part of it while the liquid is being changed into vapor, it will be seen that, as heat is being added to the liquid to effect this change, heat must be subtracted at the same time from some other source. This is essential in accordance with the law of the conservation of energy.

When evaporation is being carried out in an open pan, as, for example, when a shallow pan of water is exposed to the air, the heat, that is required to change the water from the liquid to the vapor condition is supplied from the surrounding atmosphere and other neighboring bodies. The exact amount of heat, that is required to change the water into gaseous condition at the boiling point, must be consumed in this case as well, although the temperature of the water is far below its boiling point. A certain correction is, however, necessary due to the fact that the evaporation is taking place at a lower temperature than the boiling point.

#### Evaporation Within an Enclosed System

It is, therefore, conceivable that it is possible to produce cold by evaporation when the phenomenon is allowed to take place in an enclosed system. For the removal of the heat due to the change of a substance from the liquid to the gaseous condition may be sufficient not only to reduce the temperature but to cause congelation of other liquids to take place. Thus, when the pan of water, which is allowed to evaporate in the open air and whose temperature will be found to be less than that of the air in the very room in which it is located, is placed under the receiver of an air pump, and the vapor that is formed is removed as fast as it is formed, then evaporation may be made to take place at so great a speed that the remainder of the water in the pan will be frozen solid.

The experiment may be performed on a small scale by using a watch glass or a paper tray for holding the water, as is seen in the accompanying figure. The dish is placed on four corks and the entire arrangement is placed under the receiver of an air pump. It is also wise to place a dish containing sulphuric acid under the bell jar, so as to accelerate the action. The water will be frozen within two to three minutes and sometimes freezing will take place even while the water is evaporating at so rapid a rate that it appears to be boiling. Of course, the action of the pump is to reduce the boiling temperature of the water and to remove quickly all the vapor




*Evaporation of the water is made to take place at so great a speed, that the heat subtracted from the water and surrounding objects and consumed as latent heat of vaporization, is sufficient to result in reduction of the temperature to the freezing point of water.*

*The sulphuric acid helps to accelerate the vaporization by absorbing water vapor.*

that is formed, part of which is also absorbed by the sulphuric acid. The combined effect is that evaporation takes place so quickly, the heat that is required for changing the liquid water into the vapor state is removed from the surrounding bodies at such a rate of speed that their temperature, including that of the water itself, is reduced to such a point that the water eventually freezes.

### Clear Explanation of Latent Heat

The importance of this phenomenon lies in the fact that it affords a clear explanation of what is really meant by latent heat. It also shows conclusively that no matter what the temperature is at which evaporation takes place, latent heat must be supplied from somewhere. When water is being boiled over a gas flame, the heat comes directly from the combustion of the gas, and when the water is allowed to evaporate in an open pan or under reduced pressure, the heat is derived from the surrounding bodies.

It is thus evident that one way in which to produce cold is to allow evaporation of a liquid rapidly to take place within an enclosed system, so that the latent heat of evaporation is subtracted from the substances that it is desired to cool. If the removal of this heat is then accomplished at a sufficient rate of speed, congelation or freezing of the liquid substance will finally take place.

# Possibilities of Co-operation

## Importance of co-operative effort is stressed upon gas industry

*Morris F. Wales*

Chairman, Coast Counties Gas & Electric Company

CO-OPERATION can be defined as "the act of working jointly together" and in its original meaning was applied only to those movements which attempted to eliminate from industry the employer and the employee by welding them together into a body of workers each striving with the same interest to a common end. While the majority of such enterprises have largely failed to accomplish their purpose, the need of some element in industry other than strict individualism has persisted and the term co-operation is now applied to any quasi-union of otherwise entirely individualistic enterprises having for its purpose a united effort to bring about some mutually desired condition in the business in which all are engaged.

That co-operation in this sense is beneficial and economically sound is testified to by the number of co-operative societies and associations now in existence. There is probably not a worker or a business enterprise in the United States today not eligible to membership in one or more organizations devoted to some phase of the labor, business, or science engaged in. The best asset such an association can have is the strong support of its membership in the policies it advocates. To secure this, each association activity should be carefully measured by the co-operative yardstick to make sure that no managerial function belonging properly to individuals is infringed upon, that the activity is of mutual interest and benefit to all of the component parts of the association, and that the principles involved and the means adopted to carry them out are satisfactory to at least a majority of each element. The problem before this committee is to study this tendency in the Pacific Coast gas industry, not in detail, but in its broad aspects, as it affects our public relations and the morale of our business.

### Individual Contact

Contacts between individuals and organizations, of course, can and do occur in the ordinary routine of business outside of any association activity. Gas companies and their employees are constantly exchanging information; gas company sales departments are in frequent touch with manufacturers and dealers of gas appliances; and the manufacturers are in intimate contact with the dealers who handle their product. These contacts, for the most part, are necessarily confined to details, and it remains for the association to provide a forum for collection and interpretation of statistics, the discussion and solution of common problems, and the dissemination of facts.

Of the five co-operative bodies in which all or a part of the gas men on the Pacific Coast are eligible to membership, not one, in the opinion of your committee, is functioning completely as a meeting place for the minds of all branches of the industry. The American Gas Association is a gas company and a manufacturers' organization, and even in this capacity its influence is little felt on the Pacific Coast. The Natural Gas Association affects only a few of us, and it is largely devoted to technical matters. Our own Pacific Coast Gas Association has been and still is largely a gas company organization,

(Continued on page 500)

*Read at the 1925 Convention of the Pacific Coast Gas Association.

# PROGRESS IN GAS TECHNOLOGY
## *Domestic and Foreign*

### PURIFICATION OF COAL GAS

COAL gas, which has been freed from all tarry matters in the usual way but which still contains sulphuretted hydrogen, ammonia, volatile cyanogen compounds, condensable hydrocarbons and carbonic acid, is led through a series of vessels filled with activated charcoal. Should the percentage of free oxygen contained in the gas not be sufficient, a small quantity of air or of oxygen is added in order to promote in the first vessel the oxidation of the sulphuretted hydrogen and the precipitation of free sulphur. The gas is then mixed with enough sulphurous acid and water vapor to form ammonium sulphite in the presence of active carbon in the second vessel.

The gas thus freed from sulphuretted hydrogen and ammonia is passed through one or more absorbers filled with active carbon, which will absorb the benzol and other condensable hydrocarbons contained in the gas as well as the volatile cyanogen compounds. Should it be desired to completely purify the gas, the carbonic acid may then be absorbed by passing the gas through further absorbers filled also with activated carbon.

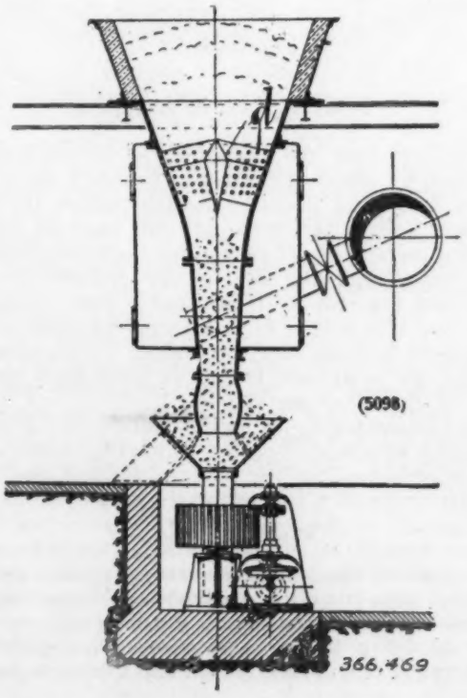
The extraction of the precipitated sulphur and ammonium sulphite, and of the absorbed products will be effected by any of the known methods, the means which may be used, and which may vary in each special case, to separate the sulphur, benzol, etc., from the carbonaceous material being independent of the present invention. For instance, the sulphur, the benzol, the volatile cyanides, etc., may be removed from the carbonaceous material by heating the latter to a suitable temperature, the apparatus being or not under vacuum. Appropriate solvents may also be used, such as carbon disulphide, for example, in the case of sulphur, etc. Both methods, heating or use of solvent, will produce marketable sulphur.—(British Patent No. 223,191.)

### INFLUENCE OF ASH CONSTITUENTS IN THE CARBONIZATION OF COAL

COKES were prepared at 500° and 800° from a New Sharlston coal containing 0.9% of ash and from mixtures of the same coal with definite quantities—equivalent to 5 per cent calculated as oxide—of ash constituents. "Iron oxide" coke was smaller in bulk, finely porous, and of higher crushing strength than the "pure coal" coke. Sodium hydroxide destroyed the coking property of the coal entirely, and sodium carbonate gave a compact, finely porous coke of high crushing strength. No changes in the nitrogen content of the cokes prepared at 500° were observed, but at 800° additions of ferric oxide, lime, and calcium carbonate decreased the nitrogen present in the coke, and sodium hydroxide and carbonate increased it; silica and alumina were without effect. Iron oxide and lime increased the sulphur retained in the 500° coke and to a greater extent in the 800° coke; sodium hydroxide and carbonate tended to retain the sulphur in the 800° coke, but were without effect in the 500° coke. "Sulphide" sulphur was produced in the 500° coke by lime and in the 800° coke by sodium hydroxide, sodium carbonate, iron oxide, and lime, the amount being greatest with lime; cokes from the coal itself and from coal with additions of silica and alumina only contained traces.—(Gas J., 1925, 171, 39—46.)

### GAS PRODUCER WITH BOTTOM DISCHARGE

THE apparatus which is shown in the accompanying illustration and which is patented in German Patent No. 366,469, is a gas producer wherein the combustible is charged to the bottom in place of through the top. The air that is passed through the combustible for the purpose of converting it into gas enters at the top through the layer of ash. The gas itself is removed through openings D and the neck of the funnel-shape top part of the apparatus.



## FUEL OF THE FUTURE

(Continued from page 484)

the alloy, as well as in the subsequent use of the metal in casting, heat is employed. As we have often said, where heat energy is consumed, there will the

*An Aluminum Melting Furnace*

industrial gas man find something that will interest him and in almost every case there will he also find a use for his fuel.

### Alloy Known in Antiquity

The fact that the properties of metals could be changed by alloying them was known a great many years ago. The Roman historians record the use of bronze, and in the Bible as well mention is made of this metal. The Greeks also possessed considerable knowledge and skill in the mixing of metals. The fact that copper is so easily obtained from its ores and also that it is found in the elemental state in nature explain why the copper alloys have been known for a greater length of time than those of any of the other metals.

The knowledge of alloying metals was developed to some extent during the following centuries but it has remained for the modern chemist and metallurgist to perfect the processes employed in alloying metals so that many more effects can be obtained with them. It now remains for the gas man to introduce the last improvement in this industry, which consists of the application of an easy-controllable fuel giving high efficiencies in operation and affording the possibility of reducing costs by eliminating the losses of metal that are incurred in the ordinary methods of melting, involving the employment of solid or liquid fuels, as well as of improving the quality of the finished alloy and the casting.

### Fundamentals of Alloying

To understand what application gas has as a fuel in the manufacture and casting of alloys, it is first necessary to understand the fundamental conceptions and laws that pertain to the alloying of metals. In the first place, an alloy is far from being a simple mechanical mixture of two or more metals. Alloys are, therefore, either solid solutions or chemical combinations. In the formation of alloys there are often manifested the phenomena that are commonly associated with the formation of chemical compounds. Thus, there is often the evolution of heat, the production of a product which possesses marked characteristics that are not found in either of the constituents from which it is made. Thus, alloys possess characteristic color, specific gravity, fusing temperature, power of conducting heat and electricity.

But, when comparing what happens when two or more metals are mixed together to form an alloy with what takes place when a solid is dissolved in a liquid, it will be seen that there is considerable similarity between the two cases. Thus, heat is developed when sulphuric acid is mixed with water. The specific gravity of solutions is different from what might be expected if the two substances were merely mixed together. Thus, the solution of salt in water has a greater specific gravity than the original water, and then and again there are cases where

*Heat Treating Furnace*

the specific gravity of the solution is less than that of the original water.

### Alloy Not a Chemical Compound

Other similar phenomena seem to indicate that an alloy is not essentially a chemical compound. It is not necessary to pursue this phase of the subject any further, for the gas man is not vitally interested in the reasons and observations that led to the conclu-

sion that an alloy is a solid solution of one metal in another. Metals possess the property of dissolving in one another in varying degrees of ease, and in this they are no different from solids which dissolve in water or other solvents, or from gases and liquids which also possess the property of dissolving in each other or in water.

Alloys are formed under different conditions. Thus it is not essential that both metals be in the molten condition when solution takes place. It is possible, for example, to have one of the constituent metals in the liquid condition and dissolve the other in it while in the solid state. Thus, copper will dissolve in molten tin, and it is not even necessary for the temperature of the molten tin to be as high as the fusing temperature of the copper. Perfect solution takes place at much lower temperatures. In the same manner silver will dissolve in molten lead, carbon in iron and so on. It remains a fact, however, that the solution of the two metals will be effected more rapidly when both of them are in the liquid state. It is also possible to make two metals fuse together to give a solid solution or an alloy by

*Gas Fired Smelter*

subjecting them to great pressure. This method is merely of academic interest and is not employed for any practical purpose.

One exception to the general methods of making alloys must be cited just for the purpose of making this study as comprehensive as possible. What is referred to is the metal mercury, which is a liquid at ordinary temperatures. Mercury will alloy with a larger variety of metals by merely being brought into contact with them at the ordinary temperature.

### Classes of Alloys

It has been mentioned before that common brass is one of an important group of alloys which are obtained with the aid of copper and zinc. It has also been mentioned that a bronze will be formed by the admixture of tin and copper. In reality the number of alloys of these metals and of others as well are very numerous and it is possible, therefore, to study only those most important from a commercial standpoint in this series of articles. It is a fact that they all require heat, with but few exceptions, for their manufacture or for their use in foundry practice, and that there are opportunities presented here for gaseous fuel.

In all there are twelve classes of alloys, of which the more important are the aluminum alloys, such as the aluminum bronzes, the bronzes themselves, the brasses, the nickel alloys, such as German silver, the tin alloys, which comprise most of the bearing metals, the fusible alloys which are composed of a variety of metals, such as cadmium, bismuth, antimony, etc. All these alloys are of the non-ferrous class, as distinguished from those which contain iron.

The aluminum alloys consist mainly of copper and aluminum with or without the addition of zinc. The bronzes are alloys that are most easily cast and give good looking castings. The brasses are more difficult to cast because of the zinc that they contain. In casting, these alloys fume badly, due to evolution of vapors of zinc, and this introduces a feature which is of great importance as far as selection of a fuel is concerned.

The nickel alloys are very numerous, but the most important are the German silvers. The tin alloys melt very easily and are also easily cast. They form the principal bearing or babbitt metals.

### Common Characteristics of Alloys

One of the characteristics of all alloys is the formation of eutectic mixtures. This means that when a molten alloy is allowed to cool below its congelation point, the process takes place in such a fashion that as the cooling progresses certain ingredients of the solution congeal first and the composition of the solution that still remains liquid constantly changes The solution that finally remains and congeals last is known as the eutectic solution. In other words, a composition of two or more metals which is the eutectic will melt at the lowest temperature of all the mixtures that can be made with the metals.

As far as the specific gravity of the alloy is concerned, only in the fewest cases does it conform to the specific gravity that is calculated from the specific weights of the constituent metals and the percentages in which they alloy with one another. This is due to the fact that the volume of the alloy is not the sum of the volumes occupied by the original metals. Sometimes the volume is greater, which means that the specific gravity is less than that calculated, and most often the volume is less, which means that the specific gravity is greater than the calculated. It is a fact that at times alloys are formed which have a specific gravity that is higher than that of either of its constituents. A copper tin alloy is an example of the latter condition.

### Strength of Alloys

The most important mechanical test that is made on an alloy is the determination of its tensile strength. The strength of the alloy depends to a large degree on the manipulation to which it has been subjected. As far as the effect alloying has

upon the strength of the original metal, it may be said that the strength of the metal is increased by the absorption of the foreign substance up to a certain point, and if the amount of the absorbed metal is increased beyond that point the strength decreases again. This matter of variation of strength of an alloy, according to the percentage of various ingredients that it contains, is too complicated for a detailed discussion at this point and is not of sufficient importance to the industrial gas man to warrant spending any more time on it. Suffice it to say that each case is different and that there are various factors which affect the mechanical strength of an alloy besides the percentage of ingredients that it contains.

### Hardness of Alloys

Hardness is merely another form of strength and the same general considerations which have been discussed above for the mechanical strength of an alloy apply in this case. Hardness is increased or decreased according to the nature of the metal that is added and the proportion in which it is added, as well as according to the character of the treatment to which the alloy is subjected after it has been cast. The same general rules apply to that property of alloys which is known as flexibility or ductility.

### Casting Quality

A most important property of alloys is their casting capacity or quality. This refers to the ability of the metal to flow into every part of the mold, when in the molten condition and fill these parts completely, so that a good casting is obtained. This depends on four properties of the alloy.

First there is the melting temperature. Alloying has the effect of reducing the melting temperature of the metal by a proportion which is different from that which is obtained by calculation from the proportions of the metals used in the alloy and their melting temperatures. It follows that the lower the melting point of the alloy the more easily can it be converted into the molten condition.

The second consideration from this standpoint is the fluidity of the alloy. This also has a potent effect on the casting capacity of the metal. It is understandable that the more thinly fluid the molten alloy the more easily it will penetrate into the thinnest cross-section of the mold. It is possible to influence the fluidity of an alloy by heating it to some temperature in excess of its melting point, but it is a property that is solely characteristic of the alloy itself. It has been observed that as a general rule the alloyed metals pass less gradually into a state of fluidity than the pure metals.

### Development of Gases

Another important factor in determining the casting quality of an alloy is the development of gases during the casting process. This materially detracts from the value of the alloy for casting purposes. Thus it may happen that the gases are developed shortly before solidification takes place and under these conditions the alloy metal is full of gas bubbles. The development of gases in the metal can also cause it to swell up and become entirely unsuited for casting. The fact that certain metals and alloys in the molten condition possess the property of absorbing gases makes it essential that the melting process be carried out in apparatus that has been properly designed for the purpose and fired with fuel that removes any danger of gases being dissolved in the metal. It is a fact that the alloys are not so apt to dissolve gases as the pure metals. It is possible under certain conditions to alloy a metal in such a manner that its tendency to dissolve gases can be entirely removed.

### Shrinkage

In the solidification of metals the first effect is expansion, but as the metal cools off contraction takes place. The casting is hence always smaller than the mold in which it has been made. The shrinkage of metals and alloys depends on the inherent properties of the metal. It is often found that an alloy will shrink in greater degree than either one of its constituents.

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## MARKET ENTERS FALL WITH GOOD PROSPECTS

(Continued from page 490)

requirements with a view of placing contracts for the future has become an established practice with most manufacturers. This practice should now be exercised more fully. To know one's requirements now and to place contracts for these sufficiently in advance will save much trouble later. It adds an element of safety to manufacturing which is desirable at any time, but becomes almost vital during periods of stress. But to estimate one's requirements of raw materials correctly in turn necessitates a fair understanding of the wants of one's customers. Hence the salesmen going out in the field should be instructed about the peculiar needs of the situation. They should know that a temporary stoppage may occur at any time and that the consumer can expect to be served regularly only if he also is willing to place confidence in the manufacturer by letting him know his own requirements sufficiently early to permit the former to make arrangements for prompt delivery.

### Widespread Character of Movement

There is, of course, a possibility that the present labor unrest is only of temporary character and that it may pass over as quickly as it has come about. But while such an eventuality is conceded, it would be an unwise policy to trust to luck in the hope that we may squeeze through somehow. This is especially the case in view of the extensive range of the present disturbance, which is confined not only to the American market, but has its replica in

England as well as in other industrial nations of the world.

It is one of the achievements of modern market organization that it takes care of situations of such character as are now developing and by early action neutralizes their dangerous effect upon the conduct of the nation's business.

As it happens, the market is well prepared to receive and resist successfully the shock of the disorganization which must follow any widespread strike movement.

### General Soundness of the Market

Reports from all parts of the country indicate a general soundness of the market condition. Buying, particularly in the farming districts, has been very good, and the demand appears to be on the increase. Such retail distributors as mail order houses, department stores, and the chain stores, have had a surprisingly good summer and expect to do well during the fall season, which has been somewhat delayed owing to the lateness of Labor Day.

The money situation, which caused many complaints during spring, has shown greater steadiness, with retailers making a good effort to make payments promptly, which in turn has had a good effect upon industrial settlements.

### Better Grade Goods Being Demanded

The demand for lower-grade and cheaply-priced merchandise, which has been characteristic for the early part of the year, has been replaced by a call for goods of higher quality, with prices steadying all over the market. This has already had a beneficial effect upon fall orders and may show its full usefulness when ordering begins for winter requirements.

Experts agree that the volume of business in the past summer was decidedly greater than that in the same period of last year. Taking all this into consideration, it appears, therefore, that business is entering the fall season under very satisfactory prospects.

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## ORGANIZING THE SALES DEPARTMENT

(Continued from page 485)

pects if the producers of coke and bituminous coal had been employing real merchandising methods continually. I judge that, in general, they have not been acquainting consumers with the uses to which these other fuels are suited and have not been making it easy for consumers to buy those fuels. In this respect, the bituminous coal companies have been even poorer merchandisers in the northeastern part of the United States than the coke producers. This, however, is a digression which I will not undertake to follow further, but I will use it merely as an example for pointing out the fact that the peculiar characteristics of the by-product market and the buying habits and motives which govern the action of consumers in this market also call for separate provision in the sales organization.

### Appliances

The third segment of the market is that for appliances and here there are two subdivisions—one relating to the sale of the appliances and the other service in maintaining the satisfactory operation of the appliances.

The problem here is the same fundamentally as the merchandising problem of many other industries. The task is to serve customers so that they will secure the maximum satisfaction from the use of gas and thereby consume the maximum quantity consistent with their real interests. Here a gas company comes into competition with many other articles and services for a share of the consumer's dollars. Consumers must decide whether to spend their money for new gas appliances and for the use of those appliances or for other commodities and pleasures. The gas industry, I believe, is handicapped by the tradition that merchandising effort is not needed. This tradition, growing out of the fact that a gas company usually has a local monopoly of the gas business, has resulted in a "take it or leave it" attitude which gives the impression of indifference to customers. This is not true probably of every gas company, but there is good reason for thinking that it is fairly typical. The effect of this attitude is that many consumers probably are spending money for other purposes when they might secure greater satisfaction if they spent it for gas. They are spending it for other purposes because the other industries, speaking generally, are better merchandisers than the gas companies. These other industries have recognized the fact that consumers prefer to spend their money where their patronage appears to be gratefully received rather than indifferently accepted.

### Buying Motives Must Be Aroused

Consumers will buy gas appliances and use gas to the maximum only when their buying motives are properly aroused. This is merely applying the same rule that governs other industries that are conspicuously successful in merchandising. When we come to the subject of consumers' buying motives, it is well to recognize clearly at the outset that the primary buying motive of consumers ordinarily is not price, but rather the result to be accomplished. Consumers do not decide to buy gas appliances primarily because they are cheap, but rather because of the service that those appliances will render. Such motives as making the work easier, securing better results in baking, for example, maintaining reputation for good cooking, or personal comfort such as having hot water easily available for the bath or shaving, are examples of the motives which induce consumers to buy gas appliances and use gas. If those motives are effectively aroused, the question of price becomes secondary. So far as the appliance business is concerned, therefore, one of the major

tasks of the sales department of a gas company is to arouse these buying motives. It is not safe to assume that customers automatically are impelled by these motives to the maximum expenditure for gas appliances in the face of the competition of other industries.

### Sale of Appliances by Other Stores

In merchandising gas appliances it seems to me that a gas company ought to undertake to induce other stores in the community which sell heating appliances to put as much sales effort as possible on gas appliances. Far better results will be secured by having the enthusiastic co-operation of these merchants in promoting the sales and use of gas appliances than to have them apathetic or disposed, where possible, to divert sales to other heating equipment. In this connection, it may be desirable, for example, to permit other stores to assure customers that the gas company will render the same sort of service on appliances sold by those stores that it renders on the appliances which it sells and on the same terms. The purpose of such a policy is to secure the maximum sales effort on appliances, because the more appliances that are sold the more gas will be used, and in referring to the maximum use of gas I do not mean wasteful or unnecessary use, but rather use which will render real satisfaction to consumers. Any other sort of extension of the market would be short-sighted and would create a thoroughly undesirable hangover.

### Service on Equipment

Another major task of the appliance department should be to aid customers adequately in keeping their equipment in first-class condition. When a customer has a dilapidated stove or clogged burners, the effect is that the appliance gives poor results and customers are discouraged from using it as extentively as if it were operating well. This leads to dissatisfaction with the results that are obtained, a diversion of expenditures to other purposes and a lukewarm attitude in recommending the purchase of appliances to friends and neighbors. Whether the service in maintaining equipment in first-class condition is rendered free or not is a secondary matter. If consumers are led to appreciate the results to be secured, they will be willing to pay for the benefits received.

In order to carry out this task, provision should be made in the sales plan for letting customers know of the service that is available and they should be induced to use that service liberally.

### Gas Company in Strategic Position

In promoting the sales of appliances and in securing proper maintenance of the appliances already installed, a gas company is in a particularly strategic position. In fact, most other industries would count themselves fortunate indeed if they had similar knowledge of the identity of their customers and access to them. The gas company knows who its customers are. It has an opportunity for keeping a record of the equipment of each customer in order to know where a potential market exists for the sales of new appliances. This record can be secured from the sales records of the company and by means of inspection at the time meters are read. It seems to me that it should be a fairly simple matter for a gas company to ascertain just what appliances have been installed by each customer. The gas company, furthermore, has the advantage of making frequent calls on each customer for reading the meter. If the company were to send a competent inspector to read the meter of each customer periodically and to look over the equipment at the same time, it would be possible for him to make minor adjustments or to show the customer where the operation of the appliance could be made more effective by the use of the service department of the gas company. This service should not be imposed as a nuisance on customers, but offered courteously with a view to helping them secure the maximum satisfaction from the appliances installed. To me personally it seems doubtful as to whether an inspector who reads the meter and looks over the equipment also should undertake to sell new appliances at the same time unless questions were asked him regarding them. Separate sales effort ordinarily appears to me to be desirable for promoting the sales of appliances in order to avoid having the inspector looked upon as an unwelcome intruder.

### Real Merchandising Problem

A gas company obviously has a real merchandising problem. This problem cannot be solved by spectacular stunts or jerky campaigns. It calls for sound planning and persistent execution—the same sort of merchandising effort, in other words, that has yielded conspicuous success in many other industries.

In carrying out this program it is necessary not only to have a courteous sales organization, but one which will actively stimulate the interest of consumers, arouse their buying motives and maintain their satisfaction. As I said before, a sound merchandising plan is to be governed by the consumer's buying habits, interests and motives.

This discussion of the tasks of the appliance department indicates that that also should be one of the major divisions of the sales organization. These three divisions should be brought together under a single head and properly co-ordinated.

This analysis of the sales problems of the gas business may or may not be accurate in all its details. I believe, however, that the experience of other industries proves, in general, that it is a sound approach to the sales problems of the gas industry.

## ACCIDENT PREVENTION IN THE GAS INDUSTRY

(Continued from page 486)

effort of the highest order by seriously discussing the subject among their associates, and citing cases to illustrate their thought. Serious and sustained interest is of the greatest importance in this work.

### Value of Systematic Safety Efforts

Systematic safety effort, in any well organized company, means better industrial relations, and increases the personal contact between employees and the supervisory force. Accidents antagonize, and efforts to prevent them bring employees together on a friendly basis, and that basis means much to the management.

A prominent source of information as to the causes of accidents is the newspapers, which daily publish accounts of casualties. It is well to read enough of their accounts to learn the causes, in order that the lessons they so often teach may be applied in our own fields of activity, and every effort made in our work to avoid accidents from similar causes.

The financial results of successful accident prevention work are great, but they are not to be compared with the greater freedom of humanity from suffering. If we endeavor to picture the conditions in the family of a badly injured employee, we will arouse within ourselves a real interest in prevention, and will automatically endeavor to help those in whom we are interested to travel the safety course —and in time they will be appreciative.

We have steadily shown decreases in accidents or in costs from year to year, but our basis of comparison has not been right. We have simply been able to tell of so many accidents and so much cost during a certain year, and of so many accidents and so much cost during the succeeding year, without regard to severity and increases or decreases in business done.

The value of knowing exactly what progress we were actually making, or not making, in the way of results, was not considered of sufficient importance to warrant the time and attention necessary to an extended actuarial study of the subject, based on tabulating man hours worked and man hours lost due to accidents, and the relation of the one to the other.

### Recording Progress Made

Starting with January 1, however, we have overcome the difficulty and are now preparing our actual experience on the following formulae:

Frequency Ratio—Number of accidents causing loss of time per 1,000 payroll hours.

Severity Ratio—Number of days lost per 1,000 payroll hours.

This means extra work for the accounting department, but it is well worth while. The result will be that the increase or decrease within our companies in the number of hours worked and lost through work accidents will be shown in their true relation in our accident study. We will be able to locate and treat the weak spots with special consideration.

I recommenl this method to those in attendance at this convention. If it is properly followed, it will enable you to make intelligent and helpful comparisons and encourage competition, which will be followed by a decrease in casualties.

### List of Hazards

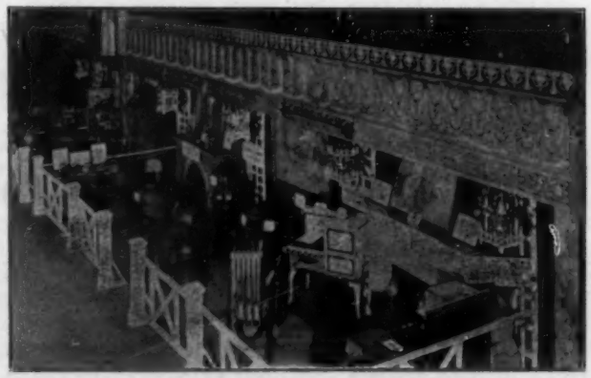
To help individual employers avoid accidents, I believe a list of the hazards by occupations liable to be met in the industry of great assistance. The Accident Prevention Committee of the American Gas Association is now at work on a chapter on this subject, which will probably appear in the Proceedings of its Convention next autumn. I recommend that each manager or superintendent carefully study this chapter, and from it carry on to his workmen such precautionary measures as may appeal to him in his particular situation. To those who are not members of the National Safety Council, Chicago, I recommend investigating the many advantages of membership in that body.

In order to accomplish the best results in preventing accidents, we must be familiar with their causes. Where a man possesses this knowledge and is alive to the dangers of carelessness, he will naturally and instinctively avoid accidents, and thereby effect a saving all around.

### "Be Careful First"

Bearing constantly in mind the slogan "Be Careful First" is certain to result in increased freedom from accident hazards incident to our occupations, as well as to our private lives. The return on the effort is twofold; it not only means suffering and misery avoided, but neither the workman—(and his all-important family) nor the employer sustains the money losses that accidents entail.

If I have helped to impress upon all of you the importance of accident prevention to the gas industry, I shall feel well repaid for the effort.



*The Consolidated Gas Co.'s Exhibit at the 100th Anniversary Celebration of 42nd St., New York City*

## POSSIBILITIES OF CO-OPERATION

(Continued from page 492)

ard, in spite of much effort on the part of its officers of late years, the technical problems of gas manufacture and distribution predominate in most of its meetings. The weakness of our association along commercial lines was, partially at least, responsible for the formation of the Gas Appliance Society of California, an organization specifically devoted to the marketing of gas appliances. The fifth body known to your committee is the California Gas Research Council, limited in membership to a few of the larger California gas companies, and devoted entirely to technical research.

### Gas Industry Not Co-operating As It Should

Your committee is of the opinion that the gas industry is not taking full advantage of the co-operative movement which has proven so advantageous to other industries. In spite of the number of organizations our companies are supporting, there is not one performing the function which appears to be most important—that of bringing together the company, the manufacturer and the retailer, by informing each one of the problems of the other and thus tending to bring about an understanding and a mutual respect that would be of great advantage to the industry. The evils which are said to beset our industry can best be overcome by a courageous facing of the facts. What are the facts? We do not know. Stories are conflicting and it may be that the gas companies deliver a cleaner gas than many appliance manufacturers have us believe; that there are fewer appliances of poor design than is contended by some gas companies; and that there are retailers who do not make an honest effort to sell a good grade of appliance and install it correctly. These claims and counter-claims are subject to investigation and fact finding, and that they should arise at all clearly indicates the need of an organization to bring together the three groups making up our industry.

The Pacific Coast Gas Association is undoubtedly the organization best adapted to assume this responsibility. The Proceedings of the Association and the program of this convention give ample evidence that much has already been done by individual members, and that the association is organized and capable of serving in this manner. These remarks should not be construed as a criticism of the officers and directors, for in the last analysis the association can only be what its members make it, and can only do what its members first do for it. What is needed is a realization, on the part of members, of the important part co-operation is now playing in all industry, and of this realization will be born a greater association including all men who have in their hearts the vision of gas as the supreme fuel.

### Recommendation

It would be presumptious for this committee to make definite recommendations as to how to reach this desired end. The machinery is already set up and only the spirit is lacking. We feel, however, that the following general recommendations are within the province of this committee:

(1) A determined effort should be made to bring into the association not only gas companies but all reputable appliance manufacturers doing business on the coast, and a sufficient number of retailers to place authoritatively before us the problems of merchandizing and public contact arising in a retail establishment.

(2) The activities embarked upon should fit the definition of co-operation. They should be in no sense managerial and should be confined largely to matters of common interest to the three classes of membership. It is not meant that all topics should be matters directly concerning all three groups, for it is believed that the best possible way to foster understanding is to develop in each group a knowledge of the problems of the other two.

(3) The association should, through its various sections working in conjunction with the secretary's office, embark on a definite program of technical and business research, including the collection of the definite physical statistics of the Pacific Coast gas business. These facts will serve a very useful purpose, not only in supplying information to our members, but in guiding our publicity.

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## AS SMOKE ELIMINATOR, GAS AN AID TO HEALTH, SAY RESEARCH EXPERTS

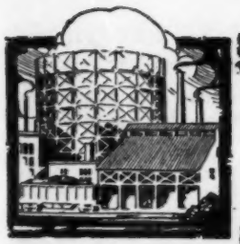
In addition to being a nuisance and a destroyer of property, the amount of smoke in the air has direct connection with the death and disease rate, says a bulletin of the Nebraska Agricultural College, as quoted by the Pennsylvania Public Service Information Committee.

A nation-wide campaign against smoke is being conducted by the Mellon Institute, the American Gas Association and other national agencies. According to the announcement of the Agricultural College, the disease factor is low where pure, undiluted sunlight is plentiful.

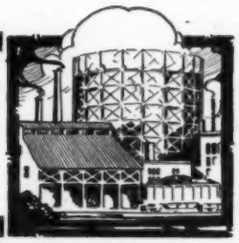
"It is universally high wherever a perpetual film of smoke absorbs the sun's rays and prevents them from reaching the earth with their full strength," says the bulletin. "Rickets, long thought to be a diet-deficiency disease, is now found to result much more directly from lack of sunlight.

"In America, one authority tells us, the children of the poor get rickets because they live in dark surroundings. In India the poor children are free from rickets because they romp around out-of-doors, while the children of the rich are rickety because of their being kept indoors to shelter them from the effects of the hot sun."

When the people of Pittsburgh discovered that their community had a high pneumonia death rate, there arose a demand for action. As a result, with the application of gas and the installation of smoke consuming devices, at least 50 per cent. of the smoke of Pittsburgh has been eliminated.



# NEWS OF THE GAS INDUSTRY



### Robert Olcott New President of Municipal Gas Co.

Albany.—Robert Olcott, president of the Mechanics and Farmer's Bank, Albany, was elected president of the Municipal Gas Company at the annual meeting held recently, succeeding Nicholas F. Brady of New York, and William G. Furlong, who has served as secretary and treasurer for the last twelve years, was elected vice-president and general manager in place of Carl F. Graf, resigned.

Charles F. Brewer, chairman of the Mohawk Hudson Power Company board of directors; Charles S. Ruffner, president of the same company, and Cornell S. Hawley of the Consolidated Car Heating Company were elected directors. Thomas H. Powers, who has been connected with the Municipal Gas Company for thirty years, was made treasurer, to succeed Mr. Furlong. Neile F. Towner was named secretary and will continue to serve as counsel. Edward B. Shevlin, for many years chief clerk, and with a record of thirty-one years of service with the company, was chosen assistant secretary. George Penney, general bookkeeper, was named assistant treasurer. Those on the board of directors who were re-elected include John A. Delehanty, Charles Gibson, John S. McEwan, Neile F. Towner, E. Palmer Gavit and Robert Olcott. Mr. Olcott has been a director several years but never held any other position with the company.

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### General Gas Co. Takes Over the Waynesboro Co.

Waynesboro.—Purchase of the Waynesboro Gas Company by the General Gas Service Company, with offices in Baltimore, from D. Wertz and associates was announced by C. P. Holzderber, secretary and treasurer of the new concern.

At the same time Mr. Holzderber told of the purchase of the gas companies at Chambersburg and Hanover. Announcement of policy at this time was brief. He said no change will be made in the personnel, and that the original charters of the three companies will be retained. This means that the local gas company will still be operated as the Waynesboro Gas Company.

The Waynesboro Gas Company is a concern capitalized at $100,000, having 1,000 shares of common stock at a par value of $100 per share. The company has $195,000 outstanding in bonds.

The General Gas Service Company is a newly formed organization, composed, according to Mr. Holzderber, chiefly of young men. The executive officers and directorate so far are only temporary. Definite announcement of the personnel of the directors and officers will be made soon, he declared.

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### New Rate Schedules Approved

Albany, N. Y.—The Public Service Commission has approved the new schedule of the Adirondack Power & Light Corp. for gas service supplied in the city of Schenectady, village of Scotia and towns of Glenville, Niskayuna and Rotterdam, effective November 1, 1925, changing the period during which service may be used for residence heating to between September 1 and May 31. At present the heating period is between October 1 and April 30.

The commission has approved rates of John C. McMahon for natural gas service supplied in village of North Collins, N. Y. Schedule filed to become effective November 1, 1925, provides rate of 70c per thousand cubic feet for use of service for fuel, light and power. Minimum charge, 50c per month. Discount for prompt payment (within 10 days from date of bill), 5c per thousand cubic feet. Present rate is 57c per thousand cubic feet; minimum charge, 50c per month; discount for prompt payment, 2c per thousand cubic feet.

Also new schedule of Syracuse Lighting Co., Inc., by special permission of the commission for gas service supplied in city of Syracuse, villages of Eastwood and Solvay, filed to become effective October 15, 1925, effects reduction in rates for all gas consumed in excess of 2,000,000 cubic feet per month of 15c per thousand cubic feet for next (3d) 1,000,000 cubic feet and 10c per thousand cubic feet for all over 3,000,000 cubic feet. New rates per thousand cubic feet as follows: First 20,000 cubic feet, $1.13; next 80,000, $1.05; next 200,000, 85c; next 700,000, 80c; next 1,000,000, 75c; all over 2,000,000 per month, 55c. Minimum charge, 50c per month (no change). Delayed payment excess 5c (no change).

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### Peter Schmitz Awarded McCarter Medal

Peter Schmitz, a shop foreman of the Peoples Gas Light and Coke Company, Chicago, went to the annual convention of the American Gas Association at Atlantic City last week to receive the McCarter Medal for life saving.

The McCarter Medal, offered by Thomas N. McCarter, president of the Public Service Company of New Jersey, is awarded to gas company employees for outstanding examples of resuscitation in cases of asphyxiation. Presentation of it is featured at the annual convention of the American Gas Association.

Schmitz earned his medal last June by saving the life of Mrs. Mildred Hall of 225 West 65th Street. Her case was thought to be hopeless when he arrived on the scene. He worked on her three-quarters of an hour—forty-five minutes—applying the Schaeffer prone pressure method of resuscitation (which is standard practice as taught to its employees by the gas company).

### West Virginia Co. Buys N. Lima Gas Co.

North Lima, O.—The North Lima Gas Co., which has been supplying natural gas to local patrons for a number of years, has been sold to the Natural Gas Co. of West Virginia. Possession will be given the first of October. Service will be continued to the patrons the same as heretofore, and the local wells will be used by the new owners.

### Gas Light Co. of Waverly Absorbed by Southern Gas & Power Corp.

Albany, N. Y.—The Public Service Commission issued an order recently permitting the Southern Gas & Power Corporation of Maryland to acquire all of the outstanding capital stock of the Gas Light Company of Waverly. The Southern Gas & Power Corporation is a holding company and owns through stock control several gas companies located in Georgia, West Virginia, North Carolina and Alabama.

### Fairmont Wins Gas Service

Fairmont, Minn.—Fairmont will have gas service.

Citizens unmistakably settled this question recently when by a vote of 784 to 123, or nearly seven to one, they approved granting of a franchise to the Fairmont Gas Company, of which Engineer Fred W. Freese is the head.

The project carried overwhelmingly in all of the wards.

The total vote was 960, a very good showing at a special election and which proves that the women, the chief backers of the project, are good politicians.

#### Building to Go Ahead

Building of the gas plant will start in two weeks, as planned, Engineer F. W. Freese stated.

"Our first work will be on the gas plant building," he stated, "and we will put up a building that will be a credit to the district in which it is located. We hope to have gas January 1, if the weather is good for building. If we are held up by bad weather it will be later.

"It will be 69 feet in length and nearly as wide. The outside construction will be of ornamental faced brick. Doors and windows will be of steel and the building will be of such fireproof construction that we will not carry insurance.

"The boiler room is to be 20 by 32 feet, the generator room 25 by 29 feet, compressor meter and station meter room 16 by 25 feet. The walls will be 13 inches thick of solid brick.

"In addition to the plant there will be a brick coal shed 72 by 32 feet.

"An oil storage tank of 25,000 gallons capacity will be installed."

#### Total Cost $106,875

Mr. Freese said the total cost of the plant as shown by estimates which he has made in great detail is $106,875.

"I don't expect to make any money the first year," he stated. "I can't make money until I have 600 or 700 customers and that will take a little time.

"Don't worry about rates. Two dollars is the highest rate that Fairmont will ever pay. Gas rates always go down, to get more business. You can't get business by raising prices, and we are after business."

### Hudson Valley Coke Co. Starts Operation

Albany, N. Y.—The fires of 55 coke ovens of the Hudson Valley Coke and Products Company, Troy, were lighted at 7 o'clock one morning this week and after 24 hours of operation more than 1,000 tons of coke had been produced.

Full production is expected by November 1, at the latest, according to officials of the company, when the by-products plant producing coal tar, benzol and various other chemicals are expected to go into operation.

The gas produced incidental to the manufacture of the coke is to be sold at wholesale to the utility companies supplying Troy, Albany and Schenectady.

### Wallingford Gas Co. Changes Ownership

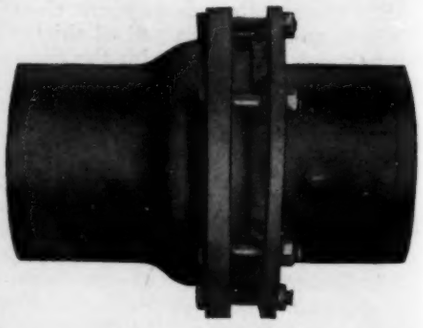
Controlilng interest in the Wallingford Gas Light Company has been disposed of by Clarence E. Thompson & Sons, of New Haven, to the Citizens Public Utilities, Inc., 149 Broadway, New York.

There will be no change in the management, M. E. Addis, general manager, retaining that position and also having been elected president of the company and a member of the directorate. The other owners of the local company are Connecticut men doing business in New York.

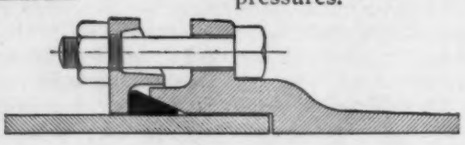
### Anthony High Pressure Joint

U. S. Cast Iron Pipe and Foundry, Burlington, N. J., announce a new joint for high pressure gas which is ideal for this service. This joint is known as the "Anthony High Pressure Joint," and is described as follows:

"Where unusual flexibility is desired, this joint reduces the possibility of leaks to a minimum, at the same time showing unusual flexibility. It is the easiest joint on the market to make up and reduces the cost of installation by



increasing the speed of laying and eliminating the need of skilled labor. An added feature is that the line may be easily and quickly removed and relaid if relocation is ever necessary. Exhaustive tests made on this joint indicate its remarkable tightness under high pressures."



### N. Henry Gellert Consulting Engineer for Brooke, Stokes & Co.

N. Henry Gellert, who has lately become consulting engineer for Brooke, Stokes & Co., Philadelphia bankers, started his career in the gas industry more than 15 years ago. He has been active not only in the gas industry, but also in the blast furnace industry during that period.

Early in his career he was assistant engineer, then chief engineer of the Key West Gas Company, during the time that this company was started and its complete plant and main system were being built.

*N. Henry Gellert*

In 1917 he started in consulting work and was very active on problems pertaining to the war. It was at this time that he became interested in the blast furnace industry because of the tremendous problem of cleaning gases that came from ferro-manganese blast furnaces. This problem had never been adequately solved before and all the systems of wet cleaning were simply makeshifts. It was then that Mr. Gellert adapted the Cottrell process to blast furnace gas cleaning and designed and built the first successful cleaner of its kind in the world.

Mr. Gellert is a member of several technical societies, of the American Gas Association, American Society of Mechanical Engineers, American Chemical Society and others. He is the author of many technical papers which he has read before engineering societies in various parts of the United States, and several of which have been published in technical journals.

In his connection as consulting engineer for Brooke, Stokes & Co., who are particularly interested in public utility bonds and stock issues, the scope of his work is naturally greatly enhanced. He brings to the gas industry a sympathetic contact between gas company and banker.

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### Best Service at Least Cost Is the Object

Wichita, Kans.—The Wichita Gas Company was organized May, 1925, to take over the operation and management of the gas distribution system of Wichita which was formerly operated by the Kansas Gas and Electric Company.

The Wichita Gas Company is not an inanimate thing but is composed of a group of human beings who feel that they have a worthwhile mission to perform. The organization in Wichita comprises close to two hundred employees, many own their own homes, many are buying new homes and each expects to be a helpful part of the community in which he lives.

#### It Has a Policy

The policy of the Wichita Gas Company is to render uninterrupted service to its 20,000 customers, 24 hours every day for each of the 365 days of the year; to furnish the best possible service at the least possible cost and to be helpful in whatever way is possible in assisting its customers to solve their gas problems.

#### Heating Services

A house heating service has been outlined which provides for the customers of the company automatic house heating; in other words, the company assumes the responsibility for acting as furnace man and for the proper heating of the home throughout the year, furnishing both the commodity to heat the home and the service which insures its proper utilization; a house heating service department which is on the job at all hours day and night.

Natural gas itself is one of the most valuable of nature's products. The community in which natural gas service is afforded is indeed fortunate. If through proper and efficient use the life of these natural gas fields from which the communities now served draw their supply can be lengthened just so much of our national wealth will be conserved.

#### Up to Customer

The customer is largely responsible for the use he makes of this commodity. At the low cost of natural gas many customers may feel no object of economy. To strive in whatever way is possible in distributing information and showing how natural gas may be efficiently and more economically used is one of the prime objects of the Wichita Gas Company.

The home service department, under the direction of one of the country's leading home economics, has recently been inaugurated. It is planned to render personal and individual service through this medium.

To care for the service needs of the rapidly growing populace of Wichita, many betterments and main extensions have been made to the eleven hundred miles of distribution system which now extends natural gas service to nearly every section of the city.

#### Plan for Future

Many improvements are planned for the future. Recently the Empire Gas & Fuel Company, the pipeline distributor from whom the Wichita Gas Company purchases its gas, extended a pipeline at a cost of $2,000,000, to Wichita, which connects many of the newer Oklahoma fields to the distribution system. These two sources of supply give the customers of the Wichita Gas Company an assured supply of gas at all times. This was recently demonstrated by the occurrence which happened some few weeks after the second pipeline supply had been connected to the distribution system when one of the city gate stations was struck by lightning and the supply from that source was necessarily cut off. By reason of the second pipeline system, however, the service to the customers of the Wichita Gas Company was unaffected.

### New Graphite Paint Announced

The Joseph Dixon Crucible Co., Jersey City, N. J., announce the addition of an aluminum graphite paint to their paint line.

This paint is made to meet the special requirements primarily of all gas companies, oil companies, steamship and industrial companies, greenhouse owners, pipe lines, municipalities, sugar companies and, in fact, wherever an aluminum paint or light-colored paint is required.

It is recommended for gas holders, oil tanks and, in fact, all exposed metal work.

It is composed of aluminum combined with the flake silica-graphite pigment and boiled linseed oil. Aluminum when used for paint making is of flake formation and, when combined with the Dixon pigment, each flake laps over, after the manner of fish scales, forming a covering of great elasticity and durability. In other words, the scales overlap one another so closely that nothing can penetrate to the under or painted surface.

Its lustre is slightly less than a straight aluminum paint, but it is pleasing to the eye.

Gases, fumes, acids, smokes and other deteriorating agents, will have little if any effect on this paint. It will retain its color after light-colored paints have darkened. It will resist the natural enemies of paint, sunlight, air and moisture. It reflects light and heat, which will make it an industrial paint of great value. It will stain less from soot, dust, water, etc. When used on oil storage tanks, it will keep the temperature of the contained oil 10 degrees lower than that of oil in tanks painted with dark color paints. This also applies to refrigerator cars and tank cars, where coolness is desired, even though exposed to the direct rays of the sun.

It can be sprayed or brushed on. They recommend the latter method. It can be brushed on over a dark coat of paint, one coat being sufficient to properly cover the under surface.

### Contracts Awarded

The Lockhaven Gas & Coke Co. of Lockhaven, Pa., are adding to their present holder capacity and have awarded the contract to the Western Gas Construction Co., Fort Wayne, Indiana, for an additional lift to their present 50,000 holder. It is planned to install this lift without putting the holder out of commission.

Materials for the purifiers which the Western Gas Construction Co. is installing at Glasgow, Ky., for the Consolidated Gas Co. have now gone forward and these purifiers will be placed in operation at an early date.

The Twin State Gas & Electric Co. of Boston, Mass., are making considerable additions to some of their plants and have placed an order with the Western Gas Construction Co. of Fort Wayne, Ind., for a 100,000 cu. ft. gas holder and 8-inch governor for their plant at Bennington, Vt., and a 100,000 two-lift holder with two-compartment purifier, meter and ammonia washer for their plant at Brattleboro, Vermont.

The Elizabethtown Consolidated Gas Co. of Elizabeth, N. J., have placed an order with the Gas Machinery Co. of Cleveland, Ohio, to install exhaust steam piping and necessary auxiliary equipment in the gas works at Elizabeth, N. J.

The installation will include exhaust steam equipment for one 10-foot, two 10-foot 6-inch and two 11-foot water gas sets, formerly furnished by the Gas Machinery Co. in the plant at Elizabeth.

The Lawrence (Mass.) Gas & Electric Company has placed order for the installation of U. G. I. Model "B" automatic control on their 9 ft. carburetted water gas apparatus.

This installation will include not only the control but the hydraulic operating devices and U. G. I. master valve.

The installation is being made by the U. G. I. Contracting Company of Philadelphia.

Luzerne County Gas & Electric Corp. has contracted with the U. G. I. Contracting Company of Philadelphia to furnish and install the Chrisman cycle on water gas apparatus at the Nanticoke (Pa.) plant.

It is expected that the installation will very shortly be completed and it will result in much greater efficiencies and economies in plant operation.

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### At the Joint Meeting

Denver, Colo.—The Colorado Public Service Association and the Rocky Mountain division of the National Electric Light Association held a joint meeting at Glenwood Springs, September 16-19. Gas and electric officials from Colorado, New Mexico and Wyoming all intermingled and discussed ways and means for better service, and a better understanding between all concerned. In the election of officers for the Colorado Public Service Association, E. F. Stone, of the Southern Colorado Power Company of Pueblo, was chosen president; J. F. Greenawalt, Denver, first vice-president; Howard S. Robertson, Denver, second vice-president, and O. A. Weller, Denver, secretary-treasurer. For the Rocky Mountain division of the National Electric Light Association, Arthur Praeger, of the Albuquerque Gas & Electric Co., Albuquerque, New Mexico, was selected for president; E. P. Bacon, Casper, Wyoming, first vice-president; Clare N. Stannard, Denver, second vice-president; W. C. Sterne, Denver, third vice-president; A. C. Cornell, Denver, treasurer, and O. A. Seller, Denver, secretary.

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### American Schaeffer & Budenberg Corp. Re-establishes Boston Downtown Office

The New England sales office of the American Schaeffer & Budenberg Corporation has been re-established in "downtown" Boston at 80 Federal Street. The telephone number is Liberty 2383.

Coincident with this change the Boston plant is being transferred to Worcester, where improved facilities will be available. All stock will be maintained at Worcester and deliveries in Boston and throughout New England will be maintained on the same prompt basis as heretofore.